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ABSTRACT

Studies concerning which type of career counseling intervention is best used with respect to the individual differences of clients have been sparse. To investigate the effects of client learning style on: (1) satisfaction with the System of Interactive Guidance and Instruction (SIGI); (2) the rating of values; and (3) selection of the main occupation field of interest, 109 college students who were clients at a career planning and placement center at a large midwestern university participated in an exploratory study. When clients signed up to use SIGI they completed Kolb's (1976) Learning Style Inventory (LSI), Holland's My Vocational Situation, and a personal information questionnaire. At the end of the semester subjects were called and asked to assess their overall perceptions of SIGI and its effectiveness. The results indicated that at least three of the four learning style groups identified by the LSI did not differ significantly in satisfaction ratings. However, significant differences were found between learning style groups for some values but not for others. No conclusion could be reached with respect to the relationship between learning style groups and the main occupation field of interest. Possible reasons for these findings are discussed and recommendations are suggested for future research in this area. (Author/JAC)

THE EFFECTS OF LEARNING STYLE ON SATISFACTION WITH A SYSTEM OF INTERACTIVE GUIDANCE AND INSTRUCTION (SIGI)

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ABSTRACT

Studies concerning which type of career counseling intervention is best used with respect to the individual differences of clients have been sparse. Identifying what techniques for which clients under what conditions still remains a formidable question within the area of career counseling and career development. The purpose of this study was to investigate the effects of the client attribute learning style on three variables: (1) satisfaction with the System of Interactive Guidance and Instruction (SIGI), (2) the rating of values, and (3) the selection of the main occupation field of interest. The results indicated that at least three of the four learning style groups identified by the LSI (Kolb, 1976) did not differ significantly in satisfaction ratings. There was, however, significant differences found between learning style groups for some values but not for others. No conclusion could be reached with respect to the relationship between learning style groups and the main occupation field of interest. Possible reasons for these findings are discussed and recommendations are suggested for future research in this area.

The Effects of Learning Style on Satisfaction With a System of Interactive Guidance and Instruction (SIGI)

Educational and career guidance have not, historically, placed much emphasis on the evaluation of methods and materials. As such, little consideration has been given to the contrasting parameters of career interventions and the demographic and psychosocial characteristics of clients that may influence the effectiveness of different types of interventions (Fretz, 1981).

In review of past evaluations of career counseling and career development interventions, it is apparent that they have seldom included considerations of individual differences. In fact, evaluative investigations, per se, represent only about ten per cent of the literature in the entire area of career psychology (Holcomb & Anderson, 1977). The need for consideration of client characteristics that may differentially affect the outcomes of career interventions has been noted in the past from Krumboltz (1966) to Takai and Holland (1979). However, many questions concerning which client attributes are more likely than others to affect which outcomes still remain unanswered. With no widely accepted or easily utilized diagnostic scheme available, counselors have assigned clients to a variety of services and programs that often did not fit their individual needs nor their preferred form of learning or acquiring information. There are a few counseling systems which operate under the assumption that each client should be matched with a mode of counseling best suited or adaptive to characteristics such as cognitive style, aptitude, interests and personality characteristics (e.g., Levine & Kantor, 1962; Samler, 1962; Shoben, 1961). However, this appreciation for client attributes and interindividual differences has not, as yet, been the focus of the career development area.

The demand for increased emphasis on attending to client interindividual differences is stressed by Fretz (1981) when he argues "that the task of the counselor, teacher, or therapist is to find more effective treatments for those clients, or students, whose attributes predict that they will gain less from a given treatment" (p. 80).

For some time, learning style investigators have been looking for specific strategies for matching particular needs of each learner with appropriate course presentations and materials. These investigators have attempted to meet not just the cognitive requirements, but the learners' individual physical and social needs as well, with the intention of reducing as much "static interference" with the "message" as possible (Kirby, 1979). With the addition of the learning style factor as a client variable, it becomes possible to consider the effects of such an individual difference dimension upon changes and outcomes resulting from specific career intervention strategies.

There is a strong likelihood that at least some individual "types" will gain more and find more satisfaction under a specific learning or counseling mode. Thus, if it is possible to systematically identify such attributes as learning styles and differences in learning styles, "then counseling, program planning, learning environments, and administrative strategies could be more finely tuned for their (the clients') benefit" (Cawley, p. 102).

If we can assume that the central task of career counseling is learning, then the rationale for investigating learning styles and their effects on different career interventions is obvious. Emerging from inborn, natural inclinations, learning styles have been described as preferred ways of learning (e.g., visual, auditory, tactile, etc.) and as personality characteristics that relate to learning (e.g., need for structure or flexibility; preference for working in groups or alone, etc.). Kolb (1976), a leading researcher in

this area, has identified two dimensions of how people learn. He has determined that individuals percieve information somewhere along a concrete to abstract continum, and that they process information by either reflecting and watching or by trying things out, by doing.

These methods of perceiving and processing are considered equally valuable and merely represent the individual's dominant mode or preferred way of learning. Kolb (1976) notes that dominant learning abilities are the "result of our heredity equipment, our particular past life experiences, and the demands of our present environment" (p. 4). Through his Learning Style Inventory (LSI), Kolb has been able to identify four types of learners: convergers, divergers, assimilators, and accommodators. Each of these has a different combination of the concrete-abstract and active-reflective dimension.

In a relatively new area of career intervention, the integration of career guidance and computer technolgoy has resulted in the development of computer-assisted guidance systems. Several studies have investigated the positive effects of using the computer with high school and college students (Pyle and Stripling, 1976; Myers, et. al., 1975; Maola and Kane, 1976; Price, 1974; Melhus, Hershenson, and Vermillion, 1973). Although these research studies generally support the use of computer-assistend career guidance systems in high school and college settings, questions still remain as to which clients can best be served with computerized forms of career guidance intervention, as well as what client attributes can best predict successful computer-assisted career guidance use. Recently, several studies employing the treatment of the System of Interactive Guidance and Instruction (SIGI) have looked at individual client attributes as an influential factor in predicting the successful use of computerized career guidance intervention. Two of these (Darlington, 1978; Cherry, 1979) have examined the cognitive style dimensions of field-dependent,

field-independent. The other (Dungy, 1980) focused on self concept and decision-making readiness. The present study was designed similar to these in that it provides career counselors with a look at the client attribute of learning style as a means of predicting the successful use of one type of career guidance intervention (SIGI).

Method

The study was conducted during the winter semester of the 1981-1982 academic year. The subjects for this exploratory study were volunteer students coming to the Career Planning and Placement Center at a large Midwest University.

Procedure

At the time of signing up to use SIGI at the Career Planning an Placement Center, subjects completed Kolb's Learning Style Inventory (LSI), Holland's My Vocational Situation (MVS), used in another study, and a personal information questionnaire. After their completion of Section I - Values of SIGI, each subject responded to an evaluation form containing questions concerning Section I - Values. Subjects then were asked to complete SIGI within a two to four week time period. At the end of the semester, subjects were contacted by telephone and were then asked to assess their overall perceptions of SIGI and the effectiveness of such a computerized form of career guidance.

Instruments

In order to test the hypotheses stated in this study, the following instruments were used:

1. The Learning Style Inventory (LSI) was developed by David Kolb to measure an individual's emphasis on each of four learning modes: Concrete Experience (CE), Reflective Observation (RO), Abstract Conceptualization (AC), and Active Experimentation (AE). Two primary dimensions (Abstract-Concrete,

Active-Reflective) combination scores, AC minus CE and AE minus RO, categorize learners into four types: converger, diverger, accommodator, and assimilator. The Learning Style Inventory (LSI) is a simple self-description test based on experiential learning theory. Experiential learning is conceived as a four stage cycle: (1) immediate concrete experience is the basis for (2) observation and reflection; (3) these observations are assimilated into a "theory" from which new implications for action can be deduced; (4) these implications or hypotheses then serve as guides in acting to create new experiences. The effective learners relies on the four different learning modes -- Concrete Experience (CE), Reflective Observaton (RO), Abstract Conceptualization (AC) and Active Experimentation (AE).

The revised version of the LSI used here is reported to have easier language and better reliability. It consists of twelve rows of four statements each of which relate to the way the individual learns. Subjects rank order from 4 (mort) to 1 (least) characteristic of their individual style of learning.

2. The SIGI Evaluation Questionnaires were developed by the experimenter to provide information on student perceptions of their experience with the SIGI system. These questionnaires are adaptations of the SIGI Evaluation Questionnaire: Form E developed by ETS from the original field test and evaluation of SIGI. Form E has been used to measure SIGI effectiveness and satisfaction with SIGI use (Sampson, 1979). Questionnaire I includes items concerning personal information, attitudes and previous experience with computers, and SIGI referral sources. Questionnaire II includes an eleven item satisfaction scale relating to Section I -Values and a record of final weightings of values and choice of interest field. Question-

naire III includes general use of SIGI and a three item satisfaction scale relating to subject's overall perception of their experience using SIGI.

Research Design

This exploratory study was designed to examine the relationship of the client variable (learning style) to the outcome (SIGI satisfaction) with a single treatment (SIGI). If any or all of the following hypotheses were accepted, it would provide indirect empirical evidence for likely interation between the client attribute and the treatment variable. Concerning this type of single treatment study, Fretz (1981) stated that "when groups of cleints, given the same treatment, end up with different outcomes significantly related to their attributes, these attributes are a potentially meaningful source of ATIs (Attributes-Treatment Interactions)" (p. 80).

To identify the possible effects of learning style on satisfaction with SIGI, a 2 x 2 (abstract/concrete x relective/active) statistical design was employed. The sample population was to consist of four groups, each containing at least ten subjects per cell (i.e., at least ten convergers, at least ten assimilators, etc.). It was decided that depending on the availability of subjects, cells would be excluded from the study in order to provide for a valid statistical analysis. Figure 1 shows the symbolic representation of the design and number of subjects for each group.

	Abstract	Concrete
Reflective	Assimilator n = 14	Diverger n = 8
Active	Converger n = 45	Accommodator n = 42

Figure 1

Due to the lack of subjects falling into the category of Diverger, this group was dropped from the statistical analysis. The criteria for dropping additional subjects from the analysis involving learning style and SIGI satisfaction was as follows:

(1) Subjects failing to complete the instruments correctly (leaving questions unanswered, multiple answers).

(2) Subjects failing to complete at least the first section of SIGI (Section I - Values).

Hypotheses

The following hypotheses were tested.

Hypothesis I

Individuals who differ in terms of their learning style will have significantly different scores on the SIGI Evaluation Questionnaire II (satisfaction with Section I - Values) and SIGI Evaluation Questionnaire III (total satisfaction with SIGI). The testing of this hypothesis was to determine if the attribute of learning style could serve as a mediating variable which interacts with the treatment (SIGI) to produce different degrees of satisfaction. The statistical procedure used to test this hypothesis was a one-way analysis of variance on the total scores of each Questionnaire as well as on each of the eleven and twelve respective composite scores to determine what difference, if any, exists between the learning style groups. The questions on Questionnaires II and III were then subjected to a factor analysis in order to identify the underlying factors making up the evaluations. If more than one factor was identified, an analysis of variance was done to determine which factors (if any) on the SIGI evaluation Questionnaires II and III were being influenced by learning style. The .05 level of significance was used as a basis for accepting or rejecting the hypothesis.

Hypothesis II

Individuals who differ in learning style will rate their values differently in the Values section of SIGI. Hypothesis II was tested by using ten separate one-way ANOVAs for each of the composite scores on the values profile. The .05 level of significance was used as a basis for accepting or rejecting the hypothesis.

Hypothesis III

Individuals who differ in learning style will select different main occupational fields of interest as found in the Values section of SIGI. The statistical procedure that was used to test this hypothesis was a two-way chi-square test to determine the existence of signfiicant differences between groups. Again, the .05 level of significance was used as a basis for accepting or rejecting the hypothesis.

Results and Discussion

The present research investigated the effects of learning style upon satisfaction with using a System of Interactive Guidance and Information (SIGI). Three questions were posed. (1) Does the attribute of learning style affect satisfaction with using SIGI? (2) Does learning style affect the rating of values? (3) Does learning style affect the selection of the main occupational field of interest?

Table 1 shows the means an standard deviations for learning style groups on Satisfaction with Values and on Satisfaction with SIGI. This is presented for the raw data for purposes of clarity. The results of two separate one-way analyses of variances found that no significant difference existed between learning style groups on scores for satisfaction with values or for satisfaction with SIGI. Tests of homogeneity of variance indicated that the data did not meet the requirements necessary for valid statistical analysis. Thus,

a log transformation was performed on the data in order to meet the assumptions for the ANOVA. The statements about statistical significance of differences refer to analyses performed on transformed data. A factor analysis was performed on the eleven items of the satisfaction with values scale. Using the principal axis and the varimax rotation methods, the factor loadings indicated that almost half (48%) of the variance of this set of variables was explained by one factor. Performing the same analysis on the twelve items of the satisfaction with SIGI scale, similar results were found with 44% of the variance accounted for by one factor. These results indicate that for both sclaes one primary factor (satisfaction) was being assessed.

Insert Table 1 about here

Table 2 shows the means and standard deviation for each of the composite scores on the values profile for the three learning style groups. Again, a log transformation was performed on the data in order to meet the assumption of homogeneity of variance for the ANOVA. Ten separate one-way ANOVAs performed for each value indicated that there was a significant difference at the .05 level between learning style groups with respect to the values of High Income, Helping Others, and Leisure.

Insert Table 2 About Here

Table 3 shows the frequency of learning style groups and the main occupational field of interest selected. Due to the sparseness of the cells (over 20% of the cells have expected counts less than 5), the chi-square does not provide a valid basis for stating a conclusion.

Insert Table 3 About Here

Hypothesis I stated that subjects who differed in learning style would have significantly different scores on the Satisfaction with SIGI scale, Section I - Values and the overall Satisfaction with SIGI scale. The finding that there was no significant differences between the learning style groups is consistent with the results of Darlington's (1978) study in which there was no significant differences found between field-dependent and field-independent students in the area of Liking for SIGI. In Darlington's study, field-independent students were expected to find the experience of working with SIGI more congenial than would field-dependent students. No significant differences were found. In this case, the comparison make between learning style and cognitive style is necessary since the present study is the first to explore the effects of learning style and use of SIGI.

Hypothesis I was based on the assumption that individuals with differing learning styles would prefer a particular instructional method or learning situation as previously described (Kolb, 1976; Whitney and Caplan, 1978; Pigg, Busch, and Lacy, 1980). The possible explanation for the lack of significant differences found in the present study is that SIGI, by its nature and format, provides an instructional mode which involves all four stages of the learning cycle described in Kolb's experiential theory of learning. This theory, as described previously, states that learning involves (a) concrete experience which is the basis for (b) observation and reflection. The learner then uses these observations to build (c) ideas, generalization, or "theory" from which new implications for action are deduced. These hypotheses then serve as guides which yield (d) hypotheses to be tested out and the creation of new

experiences. Thus, SIGI may involve the student in a unique learning process which may employ the use of all four of these abilities. Kolb (1981) indicated that learning requires abilities that are "polar opposites," and that the learner must continually choose which set of learning abilities to use as a result of the task that is presented. During the process of interacting with SIGI, it is possible that the student moves in varying degrees from actor to observer and from specific involvement (the concrete) to general analytic detachment (the abstract). It is important to point out that learning styles represent a preference for one mode of learning over the others; but, as Kolb (1981) says, "these preferences do not operate to the exclusion of other adaptive modes and will vary from time to time and situation to situation" (p. 290). Thus, it is likely that with respect to the learning style groups of Convergers, Assimilators, and Accommodators, individuals found something within the SIGI program that apparently was satisfactory. The fourth group, Divergers, was omitted from the statistical analysis as stated in Chapter 3. Due to the small sample size (only six subjects completing at least the first section of SIGI), there is not enough evidence to explain the reaction of this group to SIGI. However, based on the general description of Divergers, it is possible that this group would find SIGI less satisfactory than the others. Divergers' greatest strength lies in imaginative abilities. They tend to be creative and emotional. Thus, given the structured nature of SIGI, it is possible that Divergers would find SIGI too confining or too "programmed." The only statement that can be made from the data collected in the present study concerns the lack of Divergers coming to the center during the time this study was being conducted. Divergers are either less likely to come in for career information or guidance, or there are less Divergers existing in the general university population from which the sample was drawn.

Hypothesis II stated that subjects who differed in learning style would rate their values differently in the Values section of SIGI. The finding that there was a significant difference between some of the learning style groups on some of the values (e.g., High Income, Helping Others, and Leisure) was again consistent with Darlington's (1978) results which showed that the value of Helping Others was significantly related to field-independence. This also was supported by Cherry's (1979) study which demonstrated that value preferences were different for field-dependent and field-independent subjects.

The basis for this hypothesis lies in the unique characteristics associated with each of the learning style groups and the importance of the individual's values for the decision-making process. Various authors have emphasized the importance and influence of personal values as a component in the decision-making process (Gelatt, Varenhorst, Carey, and Miller, 1973; Katz, 1963). Values are defined as satisfactions important to an individual (Katz, 1973) and as socially learned constructs through which people view events and assign meaning and significance to experience, Blocher (1973). Thus, it would be expected that values would be rated differently with respect to learning style groups.

The results of this study found that Convergers rated High Income significantly higher than Accommodators. On the value of Helping Others, it was found that Accommodators rated significantly higher than Convergers. This can be explained by the unique qualities and individual differences for each of the learning style groups. Convergers prefer dealing with things rather than people and possess rather narrow technical interests which characteristically include engineers and other physical sciences. Accommodators prefer dealing with people and are inclined to choose technical or practical fields. Thus, Convergers and Accommodators appear to differ significantly with respect to

these two value areas. The value of Leisure was rated significantly higher by the Assimilators and Convergers than by the Accommodators. This result is difficult to explain. Assimilators, as described previously, are like the Convergers in that they are less interested in people and more concerned with abstract concepts. Accommodators have the opposite strengths of the Assimilators and are more concrete and action oriented. Without additional information, there is no apparent explanation given for this difference between groups.

Hypothesis III stated that subjects who differ in learning style would select different main occupational fields of interest as found in the Values section of SIGI. The finding that there was no significant difference among learning style types and the main occupational field of interest selected appears somewht contrary to the evidence on the learning style literature supporting the relationship between learning style and career interests and choice (Kolb, 1976; Plovnick, 1978; Sadler, Plovnick and Snope, 1978). However, this finding is consistent with Wunderlich and Gjerke's (1978) study which found no evidence of an association between learning style and career choice. Also, Darlington's (1978) and Cherry's (1979) studies produced expected matches between cognitive style and occupational choice in SIGI in some instances, but not in others.

The failure to find a significant difference between learning style and interest field can be explained in several ways. First of all, the contingency coefficient (0.38) derived from the attempted chi-square test demonstrated that there is some mild positive correlation between learning style groups and the selection of interest fields. Given Kolb's description of the learning style types, it would be expected that Accommodators, with their interest in people, would choose the Personal Contact area over the others. The data show that this was indeed their main choice. It would be expected

that Assimilators with their interests in the basic sciences and mathematics would tend to choose either Scientific or Technological areas. The data for Assimilators indicated that their choice was spread across all interest fields. Given the Convergers' interests, it would be assumed that this group would choose the Scientific or Technological interest fields over the others. Again, the data indicates that these two areas were the choice of many Convergers. However, it also was found that Administrative and Personal Contact areas were chosen even more frequently.

Although not part of the original purpose of the present study, it is possible that the results of the study could be explained by a difference in sex rather than a difference in learning style. The table presented in Table 4 shows the frequencies of males and females in each learning style group.

Insert Table 4 About Here

Table 5 shows a table of the means and standard deviations for sex on satisfaction with values and satisfaction with SIGI. A two-way ANOVA was performed on the data and the results found no significant difference between learning style groups on these two measures. A significant difference was found on both scales for sex with females scoring significnatly higher on both satisfaction with values and satisfaction with SIGI. These results are consistent with other research (Power, et al., 1979; Krumboltz and Schroeder, 1965; Thoresen, Krumboltz and Varenhorst, 1967) which found that in some cases sex was a factor in determining effectiveness of different types of treatment. Cherry (1979) found that male subjects experienced the greatest change in career maturity after exposure to SIGI. Darlington (1978) concluded that sex had a greater impact on the use of SIGI than did cognitive style.

Insert Table 5 About Here

With respect to sex differences and the rating of values, Table 6 shows the means and standard deviations for males and females on values rating. Performing a two-way ANOVA on each of the mean values ratings for each learning style group found that there was no significant effect of sex on the value of High Income. However, on the value of Helping Others, sex did produce a significant difference at $P < .01$ level. Performing a two-way ANOVA on the mean scores for the value of Leisure produced no significant effect of sex, but as stated previously, there was a significant difference with respect to learning style. Thus, only for the value of Helping Others could the difference found be attributed to sex rather than learning style.

Insert Table 6 About Here

Concerning the possibility of the influence of sex on the interest field selected, Table 7 shows the frequency distribution for sex and learning style by interest field. It is clear that the majority (85%) of the Accommodators choosing the interest field of Helping Others were females. The percentage of male Convergers choosing the Scientific field was 89%. This could very well indicate that sex, rather than learning style, could be affecting whatever relationship was indicated by the contingency coefficient.

Insert Table 7 About Here

Finally, the table in Table 8 describes the nature of subjects and their

Insert Table 8 About Here

general use of SIGI. Table 9 provides a table of mean scores on the satisfaction with SIGI scale for subjects with respect to the number of hours, sections completed, number of sessions, and whether or not problems were

Insert Table 9 About Here

encountered while using SIGI. For this sample, subjects with the highest mean scores on the satisfaction scale worked with SIGI a total of from three to four hours, over at least two sessions. The higher the number of sections completed, the greater was the satisfaction rating of subjects with those not encountering problems during their use rating SIGI higher than those with problems.

Conclusions and Recommendations

The results of this study led to the following conclusions:

1. There is no evidence to suggest differences in satisfaction with using SIGI in subjects who differ in their individual learning style. Thus, it appears that SIGI is a satisfactory method of career guidance for at least three of the four learning style groups.
2. There are indications of significant differences in the rating of values in subjects who differ in their learning style.
3. There is only mild evidence to indicate that different learning style groups will choose significantly different main occupational fields of interest.

Based on the results and conclusions of this investigation, the following recommendations for future research are suggested:

1. Replication of this study is needed in which enough subjects, both male and female, are identified for each of the four learning style groups. This would allow for a fuller comparison of the effect of learning style and the possible interaction of learning style and sex on the dependent variables measuring satisfaction with SIGI. It would also be useful to examine the four learning style groups with respect to the rating of values and the main occupational field of interest. This would represnt a test of the learning style model as it relates to these two important areas.
3. Replication of this study is needed in which the Learning Style Inventory (LSI) and some measure of career decision-making readiness or career maturity is used in order to investigate the relationship between learning style, sex, career decision-making stage, and the use of SIGI.

3. Replication of this study is needed in which the effect of learning style could be assessed in a pre-test experimental design using SIGI and some other similar form of career intervention. Employing some outcome measures, this type of study would more closely represent the Attribute-Treatment Interaction research (Fretz, 1981).
4. Future research on the Learning Style Inventory (LSI) is needed in order to establish better operational measures of the constructs of the experiential theory of learning (Kolb, 1981).

TABLE 1

Means and Standard Deviations for Learning Style Groups on Satisfaction with Values and Satisfaction with SIGI

	Satisfaction with Values			Satisfaction with SIGI		
Group	N	$\bar{x}$	SD	N	$\bar{x}$	SD
Converger	37	38.97	6.72	32	42.50	6.74
Assimilator	11	40.00	5.19	10	40.30	7.56
Accommodator	38	41.42	7.50	26	45.04	8.28

TABLE 2

Means and Standard Deviations for Learning Style Groups on Values Rating

	CONVERGER n = 37		ASSIMILATOR n = 11		ACCOMMODATOR n = 37		
VALUES	x	SD	x	SD	x	SD	
High Income	5.05	1.60	3.91	1.70	4.01	1.70	Converger > Accommodator P = .03*
Prestige	2.95	1.72	3.55	1.75	3.22	1.51	
Independence	4.81	1.63	4.36	1.96	4.78	1.42	
Helping Others	3.70	2.39	4.36	2.34	4.92	1.88	Accommodator > Converger P. = .04*
Security	4.16	1.74	4.73	1.68	4.27	1.79	
Variety	4.72	1.69	4.36	1.75	4.62	1.67	
Leadership	3.20	1.61	3.18	1.17	3.81	1.85	
Interest Field	5.32	1.66	4.82	1.54	5.41	1.55	
Leisure	3.92	1.66	4.36	1.03	3.24	1.75	Assimilator & Converger > Accommodator
Early Entry	2.27	2.27	2.27	1.85	1.97	2.02	P = .04*

*P < .05

TABLE 3

Frequency Table of Learning Style by Interest Field

	INTEREST FIELD						
LEARNING STYLE	Scientific	Technological	Administrative	Personal Contact	Verbal	Aesthetic	Total
Converger	9	3	7	13	1	4	37
Assimilator	3	1	1	4	2	0	11
Accommodator	2	0	7	20	5	4	38
Total	14	4	15	37	8	8	86

TABLE 4

A Frequency Table of Learning Style by Sex

STYLE	SEX		TOTAL	PERCENT
	Male	Female		
Converger	20	25	45	44.6
Assimilator	11	3	14	13.9
Accommodator	11	31	42	41.6
Total	42	59	101	

TABLE 5

Means and Standard Deviations for Sex on Satisfaction with Values and Satisfaction with SIGI

SEX	N	$\bar{x}$	SD	N	$\bar{x}$	SD
Male	44	37.93	7.02	35	41.00	6.77
Female	59	41.83*	7.01	43	45.20*	7.89

*P < .05

TABLE 6

Means and Standard Deviations for Sex on Values Rating

	MALES			FEMALES			
VALUE	N	$\bar{x}$	SD	N	$\bar{x}$	SD	
High Income	43	4.7	1.6	55	4.3	1.8	
Prestige	43	3.2	1.6	55	3.1	1.7	
Independence	43	4.6	1.6	55	4.6	1.6	
Helping Others	43	3.6	2.4	55	5.1	1.7	Females > Males**
Security	43	4.4	1.8	55	4.3	1.7	
Variety	43	4.8	1.5	55	4.5	1.7	
Leadership	43	3.5	1.6	55	3.5	1.7	
Interest Field	43	5.2	1.7	55	5.3	1.7	
Leisure	43	4.0	1.8	55	3.4	1.7	
Early Entry	43	2.0	2.0	55	2.2	2.1	

* $p < .05$
** $p < .01$

TABLE 7

A Frequency Table of Sex and Learning Style by Interest Field

LEARNING STYLE	INTEREST FIELD											
	Scientific		Technological		Administrative		Personal Contact		Verbal		Aesthetic	
	Males	Females	M	F	M	F	M	F	M	F	M	F
Converger	8	1	2	1	2	5	3	10	1	0	2	2
Assimilator	3	0	1	0	1	0	3	1	1	1	0	0
Accommodator	2	0	0	0	0	7	3	17	2	2	2	2
Total	13	1	3	1	3	17	9	28	4	4	4	4

TABLE 8

Summary of Subjects Using SIGI

Personal Information

		N	Percent
AGE:	17 and under	1	00.8
	18-22	79	63.7
	23-30	23	18.6
	over 30	21	16.9
SEX:	Male	54	43.5
	Female	70	56.5
STATUS IN COLLEGE:	Freshman	33	27.0
	Sophomore	28	23.0
	Junior	16	13.1
	Senior	16	13.1
	Graduate student	9	7.4
	Not presently enrolled	20	16.4
CUMULATIVE GPA:	3.5 or above	26	21.7
	3.00-3.49	34	28.3
	2.50-2.99	30	25.0
	2.00-2.49	17	14.2
	2.00 or below	13	10.8
MAJOR FIELD OF STUDY:	Agriculture	5	4.1
	Arts & Science	23	18.7
	Business & Public Administration	6	4.8
	Education	19	15.4
	Engineering	9	7.3
	Forestry, Fisheries & Wildlife	2	1.6
	Graduate School	2	1.6
	Health Related Professions	5	4.1
	Home Economics	5	4.1
	Journalism	12	9.8
	Library & Informational Science	1	0.8
	Nursing	3	2.4
	Public & Community Service	1	0.8
	Social Work	2	1.6
	Undeclared	17	13.8
	Not presently enrolled	11	8.9

Attitudes and Referral Sources

How did you first find out about SIGI? (SOURCE)	CPPC staff person	58	46.8
	Counselor (not from CPPC)	3	2.4
	Advisor	0	0.0
	Faculty/Instructor	7	5.6
	Career Class	7	5.6
	Friend	27	21.8
	RA	0	0.0
	Reading about it	5	4.0
	Other	17	13.7
What was your primary reason for coming to the center to use SIGI? (REASON)	Class assignment	11	8.9
	Curious	17	13.7
	Need to decide on a major	29	23.4
	Need to decide on a career	40	32.3
	Friend convinced me	5	4.0
	Advisor convinced me	0	0.0
	CPPC staff convinced me	11	8.9
	Other	11	8.9
Which one of the following goals do you expect SIGI to help you with most?	Choose a major	22	17.9
	Learn how to make a decision	5	4.1
	Decide on a career	46	37.4
	Decide which courses to take	5	4.1
	Learn about your values	25	20.3
	Help you find a job	9	7.3
	Other	11	8.9
Have you ever used a computer or been exposed to computerized instruction before? (USE)	Yes	56	45.2
	No	68	54.8
If yes, what was your reaction to this experience? (REACTION)	Favorable	45	78.9
	Neutral	9	15.8
	Unfavorable	3	5.3
How do you feel about interacting with a computer for career guidance? (FEELINGS)	Favorable	96	79.3
	Neutral	25	20.7
	Unfavorable	0	0.0

SIGI Use

How much time (in total) did you spend using SIGI? (TIME)	0 < time < 1 hr	1	1.2
	1 hr ≤ time < 2 hrs	38	46.9
	2 hrs ≤ time < 3 hrs	18	22.2
	3 hrs ≤ time < 4 hrs	16	19.8
	4 hrs ≤ time < 5 hrs	2	2.5
	5 hrs ≤ time < 6 hrs	6	7.4
Which of the SIGI sections did you complete? (SECTIONS COMPLETED)	Values	81	100.0
	Locate	67	83.8
	Compare	56	70.0
	Prediction	39	48.0
	Planning	34	43.0
	Strategy	30	38.0
Over how many sessions (in total did you use SIGI? (NO. OF SESSIONS)	One	45	55.6
	Two	22	27.2
	Three	14	17.3
Did you experience any problems while using SIGI? (PROBLEMS)	Yes	16	19.8
	No	65	80.2
Compared to other types of activities in which you have examined your values, how would you rate Section I - Values presented in SIGI? (COMPARED)	Better	59	56.7
	About the same	17	16.3
	Worse	2	1.9
	No previous contact with values clarification activities	26	25.0
Check those occupational values which you had not previously taken into consideration. (VALUES NOT CONSIDERED)	High Income	3	2.9
	Prestige	34	32.7
	Independence	12	11.5
	Helping Others	12	11.5
	Security	21	20.2
	Variety	22	21.2
	Leadership	18	17.3
	Interest Field	14	13.5
	Leisure	27	26.0
	Early Entry	36	34.6
	I considered all previously	27	26.9

Other than coming to use SIGI, how many times did you come to CPPC this semester? (CPPC)	zero	23	28.4
	once	24	29.6
	twice	13	16.0
	three	5	6.2
	four or more	16	19.8

Table 9

Means and Standard Deviations on Satisfaction with SIGI

HOURS	N	Mean	Standard Deviation
0 < time < 1	1	31.0	
1 ≤ time < 2	36	41.2	8.70
2 ≤ time < 3	18	44.2	6.12
3 ≤ time < 4	16	48.1	5.26
4 ≤ time < 5	2	42.5	0.71
5 ≤ time < 6	5	43.0	5.79

SECTIONS COMPLTED	N	Mean	Standard Deviation
Values	78	43.3	7.66
Locate	64	44.4	6.96
Compare	53	45.7	5.82
Prediction	38	45.8	5.50
Planning	34	46.1	5.60
Strategy	30	46.4	5.67

NUMBER OF SESSIONS	N	Mean	Standard Deviation
1	43	42.0	9.08
2	22	45.8	5.80
3 or more	13	43.5	3.33

PROBLEMS	N	Mean	Standard Deviation
Yes	16	40.9	8.33
No	62	44.0	7.42

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